UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,046	01/21/2004	Heinrich Schenk	1890-0044	3789

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/763,046	SCHENK, HEINRICH
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 September 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>19-27,29 and 31-38</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>19-27,29 and 31-38</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>11 September 2007 and 21 January 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to Amendment filed 09/11/2007.

2.   Claims 19-27, 29, and 31-38 are pending in this application. Claims 19 and 33 are

independent claims. In Amendment, claims are 1-18, 28, and 30 cancelled. This Office Action

is made final.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 19-27, 29, and 31-38 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Schenk (D.E. 19850642) in view of the admitted prior art.

        Re claim 19, Schenk discloses in Figures 1-3 a method for changing the crest

factor of a discrete-time signal (e.g. abstract in page 13 and Figure 3 with component 20),

the discrete-time signal formed from temporally consecutive signal values of a signal

vector (e.g. an example seen in cols. 5-7); the method comprising: a) providing a signal

vector (e.g. as seen in Figure 3 wherein signal is either Cx or Yx); c) determining at least

one correction vector as a function of the filtered signal vector (e.g. col. 1 line 65 to col. 2

line 47); d) adding the at least one correction vector to the filtered signal vector (e.g. col. 2 lines 1-15 and example in cols. 5-6 wherein delta(y) as correction vector).

Schenk fails to disclose the step of filtering the signal vector prior determining the correction vector. However, the admitted prior art discloses in the background of invention the step of filtering the signal vector prior determining the correction vector (e.g. page 4 first paragraph).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the step of filtering the signal vector prior determining the correction vector as seen in the background of invention into the invention because it would enable to limit the frequency range of the input signal for processing (e.g. lines 1-2 page 4 of the present application).

Re claims 20-21, Schenk fails to disclose in Figures 1-3 step b) further comprises filtering the signal vector with a high pass filter or a low pass filter. However, the high pass or low pass filter is well-known in the art and widely used in technology.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the filter with a high pass or low pass into the invention because it would enable to limit the frequency range of the input signal to desired range for processing (e.g. lines 1-2 page 4 of the present application).

Re claim 22, Schenk further discloses in Figures 1-3 step a) further comprises providing a signal vector representative of a time domain discrete multitone modulated signal (e.g. col. 2 line 65 to col. 3 line 5).

Re claim 23, Schenk further discloses in Figures 1-3 steps c) and d) further comprise: dividing the filtered signal vector into at least two part signal vectors in a cyclically alternating manner (e.g. as input into component for reduction 20 in Figure 3); calculating at least one correction vector for each part signal vector (e.g. computing each delta for each input signal); adding the at least one correction vector for each part signal vector to the respective part signal vector (e.g. abstract page 13 and lines 1-15 col. 2); and recombining the part signal vectors (e.g. Figure 3 with component 5).

Re claim 24, Schenk further discloses in Figures 1-3 step c) further comprises determining the at least one correction vector as a function of the filtered signal vector (e.g. col. 2 lines 25-42), the at least one correction vector containing spectral components exclusively within frequency ranges that are different to frequency ranges which are used to transmit data in the signal (e.g. lower frequency range from carrier).

Re claim 25, Schenk further discloses in Figures 1-3 step c) further comprises calculating elements of the at least one correction vector using a largest element and a smallest element of elements of the filtered signal vector (e.g. cols. 5-6 and col. 2 lines 25-41).

Re claim 26, Schenk further discloses in Figures 1-3 calculating elements of the at least one correction vector further comprises carrying out the calculation: delta yk =- ~ "(- 1)k(max((- 1)k.yk)+min((- 1)k.yk)), where k is the index for the elements of the signal vector (e.g. delta y_{2k} in col. 2 lines 39-40).

Re claim 27, Schenk further discloses in Figures 1-3 calculating elements of the at least one correction vector comprises carrying out the calculation: delta yk =- -~

.(max(yk)+min(yk)), where k = 1, ..., number of the elements of the signal vector (y) (e.g. delta y_{1k} in col. 2 lines 25-28).

Re claim 29, Schenk further discloses in Figures 1-3 step a) further comprise extending the signal vector at the beginning of a first end by at least one element, the at least one element obtained from an opposing second end of the signal vector (e.g. Figure 3).

Re claim 31, Schenk further discloses in Figures 1-3 step a) further comprises providing the signal vector by calculating an inverse Fourier transformation for a first signal (e.g. done or processed by the component 4 in Figure 3 for converting frequency domain data to time domain data).

Re claim 32, Schenk further discloses in Figures 1-3 the first signal is a signal for data transmission via telephone lines according to the ADSL standard (e.g. col. 1 lines 12-23).

Re claim 33, it has similar limitations cited in claim 19. Thus, claim 33 is also rejected under the same rationale as cited in the rejection of rejected claim 19.

Re claim 34, it has similar limitations cited in claim 20. Thus, claim 34 is also rejected under the same rationale as cited in the rejection of rejected claim 20.

Re claim 35, it has similar limitations cited in claim 21. Thus, claim 35 is also rejected under the same rationale as cited in the rejection of rejected claim 21.

Re claim 36, it has similar limitations cited in claim 33. Thus, claim 36 is also rejected under the same rationale as cited in the rejection of rejected claim 33.

Re claim 37, it has similar limitations cited in claim 23. Thus, claim 37 is also rejected under the same rationale as cited in the rejection of rejected claim 23.

Re claim 38, Schenk further discloses in Figures 1-3 an inverse fast Fourier transform (IFFT) block operably coupled to receive a discrete multitone modulated signal and generate a time domain signal vector therefrom, and wherein the digital signal vector includes the time domain signal vector generated by the IFFT block (e.g. done or processed by the component 4 in Figure 3 for converting frequency domain data to time domain data).

Double Patenting

5.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees.   A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6.   Claims 19-22, 25-27, and 33-36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 7 of U.S. Patent No. 6,529,925 in view of the admitted prior art.

Claims 1 and 7 of Patent No. 6,529,925 by Schenk contain most elements of claims 19-22, 25-27, and 33-36 of the instant application, but fail to disclose the filtering with either high pass or low pass filter of the provided signal. However, the admitted prior art discloses in page 4 first paragraph that the filtering with either high pass or low pass filter of the provided signal (e.g. first paragraph of page 4) wherein the high pass or low pass filter is well-known in the art and widely used in the technology.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the filtering with either high pass or low pass filter of the provided signal as seen in the admitted prior art under the background of invention into the current application because it would enable to limit the frequency range of signal for processing (e.g. lines 1-2 page 4 of present application).

7.   Claims 19-23, 25, 29, 31, and 33-37 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 26, 32, 38-39, 41, 43-45, and 50 of copending Application No. 10/763,045 in view of the admitted prior art.

Claims 26, 32, 38-39, 41, 43-45, and 50 of copending Application No. 10/763,045

by Schenk contain most elements of claims 19-23, 25, 29, 31, and 33-37 of the instant

application, but fail to disclose the filtering with either high pass or low pass filter of the

provided signal. However, the admitted prior art discloses in page 4 first paragraph that

the filtering with either high pass or low pass filter of the provided signal (e.g. first

paragraph of page 4) wherein the high pass or low pass filter is well-known in the art and

widely used in the technology.

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time the invention is made to add the filtering with either high pass or low pass

filter of the provided signal as seen in the admitted prior art under the background of

invention into the current application because it would enable to limit the frequency

range of signal for processing (e.g. lines 1-2 page 4 of present application).

This is a <u>provisional</u> obviousness-type double patenting rejection.

"A later patent claim is not patentably distinct from an earlier patent claim if the later
claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at 896, 225
USPQ at 651 (affirming a holding of obviousness type double patenting because the claims at
issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46
USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting
where a patent application claim to a genus is anticipated by a patent claim to a species within
that genus). " ELI LILLY AND COMPANY v BARB LABORATORIES, INC., United States
Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC
(DECIDED: May 30, 2001).

"Claim 12 and Claim 13 are generic to the species of invention covered by claim 3 of the

patent. Thus, the generic invention is **"anticipated"** by the species of the patented invention.

Cf., Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (holding

that an earlier species disclosure in the prior art defeats any generic claim) 4 . This court's

predecessor has held that, without a terminal disclaimer, the species claims preclude issuance of

the generic application. In re Van Ornum, 686 F.2d 937, 944, 214 USPQ 761, 767 (CCPA 1982);

Schneller, 397 F.2d at 354. Accordingly, absent a terminal disclaimer, claims 12 and 13 were

properly rejected under the doctrine of obviousness type double patenting." (In re Goodman (CA

FC) 29 USPQ2d 2010 (12/3/1993).

Response to Arguments

8.   Applicant's arguments filed 09/11/2007 have been fully considered but they are not

persuasive.

a.   The applicant extensively argues in pages 12-14 for claims rejected under 35

U.S.C. 103(a) that combined references by Schenk and the admitted prior art fails to

disclose a step of filtering the signal vector prior to determining the correction vector as

cited in the claimed invention. The admitted prior art does not teach or suggest "after

filtering the signal vector, determining at least one correction vector as a function of the

filtered signal vector".

The examiner respectfully submits that the cited primary reference alone by

Schenk does disclose all the limitations cited in the claimed invention wherein the

input signal vector is X_i (e.g. col. 4 lines 1-5) and the output filtered signal is Y_i

with corresponding coefficients C_i (e.g. col. 4 lines 33-39), a correction vector is

determined as delta(y_{ik}) as seen in column 4 lines 64-66 and finally added to the

filtered signal is Y_i as clearly seen in the example of columns 5-6.

b.   The applicant argues in paged 15-17 for claims 19 and 33 under double patenting rejection that the admitted prior art does not teach or suggest "after filtering the signal vector, determining at least one correction vector as a function of the filtered signal vector" as cited in the claimed invention.

The examiner respectfully submits that the double rejection does not require the admitted prior art to show "after filtering the signal vector, determining at least one correction vector as a function of the filtered signal vector" as alleged by the applicant. The combined admitted prior art is used to show that the filtering process is done with either high pass or low pas filter of the provided signal (e.g. first paragraph of page 4) wherein the high pass or low pass filter is well-known in the art and widely used in the technology.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The

examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2193

October 3, 2007